

What is claimed is:

1. A γ -proteobacterium having an ability to produce a target substance and modified so that an ArcA protein does not normally function.

2. The γ -proteobacterium according to claim 1, wherein the ArcA protein that normally functions is a protein defined in the following (A) or (B):

(A) a protein having the amino acid sequence of SEQ ID NO: 32;

(B) a protein having the amino acid sequence of SEQ ID NO: 32 including substitution, deletion, insertion or addition of one or several amino acids and improving an ability to produce a target substance when the protein does not normally function in the γ -proteobacterium compared with the case where the protein normally functions.

3. The γ -proteobacterium according to claim 1, wherein the ArcA protein that normally functions is a protein having 70% or more of homology to the amino acid sequence of SEQ ID NO: 32 and improving an ability to produce a target substance when the protein does not normally function in the γ -proteobacterium compared with the case where the protein normally functions.

4. The γ -proteobacterium according to claim 1, wherein the ArcA protein that normally functions is a protein having the amino acid sequence of SEQ ID NO: 32 including substitution, deletion, insertion or addition

of 2 to 20 amino acids and improving an ability to produce a target substance when the protein does not normally function in the γ -proteobacterium compared with the case where the protein normally functions.

5. The γ -proteobacterium according to any one of claims 1 to 4, wherein the ArcA protein does not normally function by means of disruption of an *arcA* gene on a chromosome.

6. The γ -proteobacterium according to claim 5, wherein the *arcA* gene is DNA defined in the following (a) or (b):

(a) DNA containing the nucleotide sequence of the nucleotide numbers 101 to 817 of SEQ ID NO: 31;

(b) DNA hybridizable with the nucleotide sequence of the nucleotide numbers 101 to 817 of SEQ ID NO: 31 or a probe that can be produced from the nucleotide sequence under the stringent condition and coding for a protein that improves an ability to produce a target substance when the protein does not normally function compared with the case where the protein normally functions.

7. The γ -proteobacterium according to any one of claims 1 to 6, which is a bacterium belonging to the genus *Escherichia*.

8. The γ -proteobacterium according to any one of claims 1 to 7, wherein the target substance is an L-amino acid.

9. The γ -proteobacterium according to claim 8, wherein the L-amino acid is L-lysine or L-glutamic acid.

10. A method for producing a target substance, which comprises culturing the γ -proteobacterium according to any one of claims 1 to 9 in a medium to produce and accumulate the target substance in the medium or cells and collecting the target substance from the medium or cells.